UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,490	10/23/2001	Raman Chandrasekar	MSFT-0739/158459.1	9421

7590 02/26/2004

Thomas E. Watson
WOODCOCK WASHBURN KURTZ
MACKIEWICZ & NORRIS LLP
One Liberty Place - 46th Floor
Philadelphia, PA 19103

EXAMINER	
LU, KUEN S	
ART UNIT	**PAPER NUMBER**
2177	4

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/004,490	CHANDRASEKAR ET AL.	
	Examiner	Art Unit	
	Kuen S Lu	2177	

-- Th MAILING DATE of this communication appears on the cover sh et with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *10/23/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

At Page 15, lines 17-18, the terms "xx", "yyy" and "zzz" are not clear.

Applicant is required to furnish he actual Patent Application information.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 13, 15-26, 29, 31-47, 50 and 52 are rejected under 35 U.S.C. 102(b) as anticipated by Ortega et al. (U.S. Patent 6,401,084, hereafter "Ortega").

As per Claim 1, Ortega teaches the following:

"receiving from a client computing device original query entry data comprising at least one word" at Fig. 2 and Col. 4, lines 28-46 by user submitting a search query from the site by entering the fields on the search page;

"analyzing the spelling of the at least one word and determining whether at least one word has a mistake" at Fig. 4, elements 72 and 76 and Col. 8, lines 41-56 by query server to determine whether the query includes both the matching and non-matching terms; and "forming auto-corrected query entry data wherein said forming includes, for each word having a mistake, replacing the word having the mistake with an alternative

word, if the alternative word satisfies at least one threshold confidence calculation" at Fig. 4, elements 72-88 and Col. 9, line 48 - col. 10, line 5 by executing a spelling comparison function to replace the non-matching term and evaluate its similarity score to determine for replacing the term for forming a modified query.

As per Claim 2, Ortega teaches before receiving, "query entry data is input to the client computing device in the query input mechanism of the service" at Fig. 1, element 34 and Col. 4, lines 4-12by user to submit query for search from the user computer and the query is received by web server from the internet.

As per Claim 3, Ortega teaches "performing the service utilizing the auto-corrected query entry data instead of the original query entry data" at Fig. 4, element 94 and Col. 9, line 27 - col. 10, line 5 and Col. 10, lines 37-41 by presenting the modified query generated by a comparison function for the query and return the query result.

As per Claims 4, 20 and 41, Ortega teaches "the service is a search engine, and said performing includes returning search results based upon said auto-corrected query entry data" at Fig. 4, element 94 and Col. 10, lines 42-51 by performing the search with modified term and returning the search result.

As per Claims 5, 21 and 42, Ortega teaches "sending the results of performing the service with the auto-corrected query entry data to the client computing device for display" at Fig. 4, element 94 and Col. 10, lines 33-51 by preferably displaying the search result performed by the modified search to the user.

As per Claims 6, 22 and 43, Ortega teaches "transmitting link data to the client

computing device for displaying a link on the client computing device, which link, if input by the user, re-performs the service with the original query entry data instead of the auto-corrected query entry data" at Fig. 2 and Col. 10, lines 33-41 by using the internet page as link for transmission between user computer and server, and preferably displaying the search result page with option allowing user to revise the query and re-attempt to query.

As per Claims 7, 23 and 44, Ortega teaches "updating at least one confidence score associated with at least one replaced word of the auto-corrected query entry data to reflect that the user is dissatisfied with the auto-corrected query entry data" at Col. 9, lines 33-47 and Col. 10, lines 6-11 by halting step 3 for adjusting the result and updating similarity score of the replacing term in the auto modified query.

As per Claims 8, 24 and 45, Ortega teaches "including receiving again from the client computing device the original query entry data; and performing the service utilizing the original query entry data instead of the auto-corrected query entry data" at Fig. 2, Col. 4, lines 28-46and Col. 10, lines 33-36 by user rejecting the search term replacement and revising the query, and submitting a search query from the site.

As per Claims 9, 25 and 46, Ortega teaches "updating at least one confidence score associated with at least one replaced word of the auto-corrected query entry data to reflect that the user is dissatisfied with the auto-corrected query entry data" at Col. 9, lines 33-47 and Col. 10, lines 6-11 by halting step 3 for adjusting the result and updating similarity score of the replacing term in the auto modified query.

As per Claims 10, 26 and 47, Ortega teaches "determining whether at least one word has a mistake includes determining whether the at least one word is in a unified dictionary" at Col. 7, lines 25-41 by correcting misspellings of terms that do not appear in the dictionary and identifying the non-dictionary terms.

As per Claims 13, 29 and 50, Ortega teaches the following:

"for each word having a mistake, discovering at least one alternative word that is a nearest neighbor to the word having the mistake" at Col. 2, lines 21-34 by finding a related term with a sufficiently similar spelling to a non-matching term, the non-matching term is preferably replaced with the related term;

"calculating a confidence score for each of said at least one alternative word, wherein the confidence score is a relative measure of a likelihood that the alternative word is the word without the mistake" at Col. 8, line 66 - col. 9, line 10 and col. 9, lines 48-52 by scoring the similarity scores of non-matching term against each of the related terms; and

"determining whether any of the at least one alternative words has a confidence score that exceeds a first threshold" at Col. 9, line 64 - col. 10, line 5 by evaluating the similarity score to determine if the related terms passes the similar test to the non-matching term by measuring if its score is within the similarity threshold.

As per Claims 15, 31 and 52, Ortega teaches "if there is only one alternative word that is a nearest neighbor to the word having the mistake, and if the confidence score for the one alternative word exceeds the first threshold, replacing the word having the mistake with the alternative word" at Fig. 4, elements 86 and 88 and Col. 9, line 64 - col.

10, line 5 by selecting the replacing term from the related terms with the most similarity score to the non-matching term.

As per Claims 16, 32 and 38, Ortega teaches "computer readable medium having stored thereon a plurality of computer-executable instructions for performing the method of claim 1" at Fig. 1, element 34, the user's computer and Fig. 2, the computer-executable instructions in the form of web page.

As per Claims 17, 33 and 39, Ortega teaches "data signal carrying computer executable instructions for performing the method of claim 1" at Fig. 1, element 34, the user's computer and Fig. 2, the computer-executable instructions in the form of web page.

As per Claims 18 and 34, Ortega teaches "device comprising means for performing the method of claim 1" at Fig. 1, element 34, the user's computer and Fig. 2, the computer-executable instructions in the form of web page.

As per Claim 19, Ortega teaches "inputting to the query input mechanism of the client computing device original query entry data comprising at least one word" at Fig. 2 and Col. 4, lines 28-46 by user submitting a search query from the site by entering the fields on the search page;

"transmitting said original query entry data to a server computing device" at Fig. 1, elements 34, 32 and 38, and Col. 4, lines 4-27by user to transmit query string through the web page with fields filled by the user at the user's computer; and

"receiving results from the performance of said service based on auto-corrected query entry data, wherein the forming of the auto-corrected query entry data in connection with said performance includes" at Fig. 4, element 94 and Col. 10, lines 25-41 by server

performing auto-corrected query which is formed by executing a program to modify the query;

"analyzing the spelling of the at least one word of the original query entry data and determining whether at least one word has a mistake" at Fig. 4, elements 72 and 76 and Col. 8, lines 41-56 by query server to determine whether the query includes both the matching and non-matching terms; and

"for each word having a mistake, replacing the word having the mistake with an alternative word, if the alternative word satisfies at least one threshold confidence calculation" at Fig. 4, elements 58-88 and Col. 9, line 48 - col. 10, line 5 by executing a spelling comparison function to replace the non-matching term and evaluate its similarity score to determine replacing the term for forming a modified query.

As per Claim 35, Ortega teaches "first displaying the auto-corrected query data set in the query input mechanism" at at Fig. 4, element 94 and Col. 10, lines 33-51 by preferably displaying the search result performed by the modified search to the user; "second displaying the search results based upon the auto-corrected query data set" at Fig. 4, element 94 and Col. 10, lines 42-51 by performing the search with modified term and returning the search result for displaying at user's computer; and

"near the query input mechanism, third displaying a link which enables the re-performance of the service with the entered query data set" at Fig. 2 and Col. 10, lines 33-41 by using the internet page as link for transmitting between user computer and server, and preferably displaying the search result page with option allowing user to revise the query and re-attempt to query.

As per Claim 36, Ortega teaches "in response to an inputting of the link, fourth displaying the entered query data set in the query input mechanism" at Fig. 2 by using an internet page as a link to input a query and at Fig. 4, element 94 and Col. 10, lines 33-41 by preferably displaying the query results page and the modified query; and "fifth displaying the search results based upon the entered query data set" at Fig. 4, element 94 and Col. 10, lines 33-41 by preferably displaying the query results page.

As per Claim 37, Ortega teaches "in response to re-entering of the entered query data set to the query input mechanism, fourth displaying the entered query data set in the query input mechanism" at Fig. 2 by using an internet page as a link to input a query and at Fig. 4, element 94 and Col. 10, lines 33-41 by preferably displaying the query results page and the modified query; and
"fifth displaying the search results based upon the entered query data set" at Fig. 4, element 94 and Col. 10, lines 33-41 by preferably displaying the query results page.

As per Claim 40, Ortega teaches the following:
"means for receiving from a client computing device original query entry data comprising at least one word" at Fig. 2 and Col. 4, lines 28-46 by user submitting a search query from the site by entering the fields on the search page;
"means for analyzing the spelling of the at least one word and means for determining whether at least one word has a mistake" at Fig. 4, elements 72 and 76 and Col. 8, lines 41-56 by query server to determine whether the query includes both the matching and non-matching terms;

"means for generating auto-corrected query entry data if according to at least one threshold confidence calculation, the auto-corrected query entry data corrects at least one mistake in the original query entry data" at Fig. 4, elements 58-88 and Col. 9, line 48 - col. 10, line 5 by executing a spelling comparison function to replace the non-matching term and evaluate its similarity score to determine replacing the term for forming a modified query; and

"means for performing said network service automatically replacing said original query entry data with said auto-corrected query entry data" at Fig. 1, elements 34, 32 and 38 by showing the network architecture of the service, and at Fig. 4, elements 86, 88 and 94, and Col. 9, line 64 - col. 10, line 5 by executing a program for automatically modifying the query by replacing the non-matching term based on similarity scoring mechanism.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 11, 27 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ortega et al. (U.S. Patent 6,401,084, hereafter "Ortega"), as applied to Claims 1-10, 13, 15-26, 29, 31-47, 50 and 52, and further in view of Brill et al. (U.S. Publication 2003/0037077, hereafter "Brill").

As per Claims 11, 27 and 48, Ortega teaches determining if at least one word has a mistake and where the at least one word in a dictionary.

Ortega does not teach "dynamically updating said unified dictionary, wherein said updating includes aggregating a plurality of data stores, with said plurality of data stores including at least one dynamically updated data store".

However, Brill teaches updating dictionary, including single and strings of words by dynamically and frequently adding them to the dictionary at Col. 2, lines 21-34.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Brill's reference into Ortega's by implementing a compact, dynamic dictionary such that missing or corrected words could be frequently added because by doing so the spelling correction would have been more effective due to the compact size and the dictionary would be more flexible to use because its content is dynamic and update-able.

3. Claims 12, 28 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ortega et al. (U.S. Patent 6,401,084, hereafter "Ortega"), as applied to Claims 1-10, 13, 15-26, 29, 31-47, 50 and 52, and further in view of Harris (U.S. Publication 2002/0059204).

As per Claims 12, 28 and 49, Ortega teaches determining if at least one word has a mistake and where the at least one word in a dictionary.

Ortega does not teach "unified dictionary is formed from a plurality data sources including a Web-specific lexicon".

However, Harris teaches searching of a plurality of data sources which includes text documents such as web pages that can include program instructions, and other types of text documents, text files, and database, although other data sources can be included at Col. 1, line 66 - col. 2, line 11.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Harris' reference into Ortega's by Implementing a distributed search engine having dictionary consisting of a plurality of data sources, including web-specific data because by doing so the customized dictionaries could customize the query to produce a customized query result.

4. Claims 14, 30 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ortega et al. (U.S. Patent 6,401,084, hereafter "Ortega"), as applied to Claims 1-10, 13, 15-26, 29, 31-47, 50 and 52, and further in view of Hoashi et al. (U.S. Publication 2001/0032204).

As per Claims 14, 30 and 51, Ortega teaches "if any of the at least one alternative words has a confidence score that exceeds the first threshold, determining for the two alternative words of the at least one alternative words having the highest confidence scores" and "...replacing the word having the mistake with the alternative word having the highest confidence score" by using similarity threshold to determine if related terms are similar enough to a non-matching term at Col. 9, lines 48-52 where five related terms score differently on the similarity test against the non-matching term and selecting the term with the lowest score as the most similar term for the replacement.

Ortega does not teach "whether the difference between the two confidence scores is greater than a second threshold; and if the difference is greater than the second threshold, replacing the word having the mistake with the alternative word having the highest confidence score".

However, Hoashi teaches defining the first threshold value as the similarities of a set of documents matching the user's relevant profile and the second threshold value as the similarities of a set of documents matching the user's non-relevant profile.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Hoashi's reference into Ortega's by implementing the second threshold test using the difference of the two most similar terms' similarity scores against a preset value because by doing so the selection of replacing terms from the most similar ones could be further scrutinized.

Conclusions

5. The prior art made of record

A. U.S. Patent 6,401,084

B. U.S. Publication 2003/0037077

C. U.S. Publication 2002/0059204

D. U.S. Publication 2001/0032204

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. E. U.S. Publication 2002/0152204

F. U.S. Publication 2002/0194229

G. U.S. Publication 2003/0084041

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuen S Lu whose telephone number is 703-305-4894. The examiner can normally be reached on 8 AM to 5 PM, Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

KL

Patent Examiner

February 13, 2004